Documentation of Environmental Indicator Determination
Interim Final 2/5/99
RCRA Corrective Action
Environmental Indicator (EI) RCRA Info code (CA725)
Current Human Exposures Under Control

Facility Name: Emporia Foundry, Inc.
Facility Address: 620 Reese Street, Emporia, VA 23847-1423
Facility EPA ID #: VAD023720105

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

   ✓ If yes - check here and continue with #2 below.

   _____ If no - re-evaluate existing data, or

   _____ If data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRA Info as long as they remain true (i.e., in RCRA Info status codes must be changed when the regulatory authorities become aware of contrary information).

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	___	✓	___	
Air (indoors)[2]	___	✓	___	
Surface Soil (<2 ft)	___	___	✓	Possible Metals, VOC, SVOC, and PCB
Surface Water	___	✓	___	
Sediment	___	___	✓	Possible Metals, VOC, SVOC, and PCB
Subsurf. Soil (>2 ft)	✓	___	___	Metals, VOC, SVOC, and PCB
Air (outdoors)	___	✓	___	

_____ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

___✓___ If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):
See attached page

("Unknowns" are carried through with "Yes" determinations to ascertain what information is needed or if risks are negligible.)

Footnotes:

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

CA 725
Section 2 attachment – Rationale and References

1. **Groundwater** – NO
   REFERENCE: 1) *Phase I RFI Work Plan, revised Final July 17, 2007; 2) Semiannual Groundwater Monitoring Report – April 2007; 3) Annual Groundwater Monitoring Report – January through December 2006*

   RATIONALE: No constituents from the hazardous waste landfill exhibited concentrations exceeding the established GPS during the annual Appendix IX sampling event held in October 2006 or the semiannual sampling event held in April 2007. Based on these results and the documentation provided in the Phase I RFI Work Plan there is no evidence of groundwater contamination for any location on-site. Additional groundwater monitoring and sampling events will be performed as part of the Hazardous Waste Post-Closure Care Permit and approved Phase I RFI Work Plan requirements.

2. **Air (indoors)** – NO
   REFERENCE: 1) *Phase I RFI Work Plan, revised Final July 17, 2007; 2) Semiannual Groundwater Monitoring Report – April 2007; 3) Annual Groundwater Monitoring Report – January through December 2006*

   RATIONALE: Data from the latest annual and semiannual groundwater monitoring events show no levels of metals, VOCs, SVOCs, or PCBs exceeding established GPSs. Since there are no elevated concentrations in groundwater and the workers in the work environments are protected under the OSHA standards it can reasonably be assumed that the indoor air is neither impacted nor does it pose a risk.

3. **Surface Soil** – UNKNOWN
   REFERENCE: 1) *Phase I RFI Work Plan, revised Final July 17, 2007*

   RATIONALE: The Phase I RFI Work Plan has documented two releases at the facility. The first was approximately 10 gallons of oil released onto the gravel covered ground immediately outside of the compressor shed. The spill was cleaned up in accordance with the facility's Contingency Plan and since the release was less then 25 gallons and promptly addressed, no report to VDEQ was required. The second incident was a fire to the facility's cupola baghouse. The water from fighting the fire was contained, analyzed, and disposed of in accordance with applicable federal, state, and local regulations and the fire was reported in accordance with the requirements of the facility's Contingency Plan.

   Surface soils may receive dust that is not captured in the bag houses as well as metal shavings and waste oils. A sampling plan was proposed as part of the Phase I RFI Work Plan for 5 of the 8 SWMUs identified. Due to the nature of the wastes contained in the SWMUs, the facility anticipates that soil contamination, if it exists, should occur at shallow depths.

4. **Surface Water** – NO
   REFERENCE: 1) *Phase I RFI Work Plan, revised Final July 17, 2007; 2) Semiannual Groundwater Monitoring Report – April 2007; 3) Annual Groundwater Monitoring Report – January through December 2006*

   RATIONALE: The Little Metcalf Branch (LMB) receives shallow groundwater and storm water from the site. The storm water flows intermittently north-northeast between the manufacturing facility and the closed landfill toward LMB. The facility has a General Storm Water Discharge Permit which requires monitoring of five outfalls. Total suspended solids, aluminum, copper, iron, and zinc consistently exceeded their respective monitoring limits. Because of this the facility upgraded its storm water system by adding riprap with filter fabric at the storm water outfalls, constructing a storm water retention basin and adding diversion berms. Only aluminum has exceeded the monitoring limits since. Based on this information and the results of the annual and semiannual groundwater sampling it is reasonable to assume that the facility is not currently contributing contamination to surface water above appropriately protective risk-based levels. Surface water sampling along LMB will be performed as part of the Phase I RFI Work Plan.

5. **Sediment** – UNKNOWN
   REFERENCE: 1) *Phase I RFI Work Plan, revised Final July 17, 2007*

   RATIONALE: Sediment deposition may be observed in the southeastern corner of the facility and in several locations near LMB.

According to the Phase I RFI Work Plan sediment is generated from the deposition of particulate material temporarily suspended in storm water and/or surface water. Sediment sampling will be performed in various locations as part of the Phase I RFI Work Plan.

6. Subsurface Soil – YES

REFERENCE: 1) *Phase I RFI Work Plan, revised Final July 17, 2007; 2) Semiannual Groundwater Monitoring Report – April 2007; 3) Annual Groundwater Monitoring Report – January through December 2006*

RATIONALE: Due to the nature of the wastes contained in the SWMUs, the facility anticipates that soil contamination, if it exists, should occur at shallow depths. Subsurface sampling will be performed at five of the eight identified SWMUs and at five additional locations along the western portion of the facility, as part of the Phase I RFI Work Plan.

7. Air (outdoors) – NO

REFERENCE: 1) *Phase I RFI Work Plan, revised Final July 17, 2007; 2) Semiannual Groundwater Monitoring Report – April 2007; 3) Annual Groundwater Monitoring Report – January through December 2006*

RATIONALE: Data from the latest annual and semiannual groundwater monitoring events show no levels of metals, VOCs, SVOCs, or PCBs exceeding established GPSs. In addition, the facility operates its baghouses under an air permit issued by DEQ. According to the facility the operating conditions of the permit have never been exceeded since the issuance of the permit in June 1987. Since there are no elevated contaminant concentrations in groundwater and the workers in the work environments are protected under the OSHA standards and DEQ air permit, it can reasonably be assumed that the outdoor air is neither impacted nor does it pose a risk.

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

Contaminated Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
~~Groundwater~~	____	____	____	____	____	____	____
~~Air (indoors)~~	____	____	____	____	____	____	____
Soil (surface, e.g., <2 ft)	NO	YES	NO	YES	NO	NO	NO
~~Surface Water~~	____	____	____	____	____	____	____
Sediment	NO	NO	NO	NO	NO	NO	NO
Soil (subsurface e.g., >2 ft)	NO	YES	NO	YES	NO	NO	NO
~~Air (outdoors)~~	____	____	____	____	____	____	____

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated" as identified in #2 above.

2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

_____ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

__✓__ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

_____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

Soil (surface) - see attached page, Item #1
Sediment (surface) - see attached page, Item #2
Soil (subsurface) – see attached page, Item #3

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

1. Soil (surface)

REFERENCE: All available information within the Department files.

Residents
NO – There is no information indicating the presence of residents on the facility.

Workers
YES – The workers at the facility may potentially be exposed to surface soils that may be high in contaminant concentrations and fugitive dust arising from the surface soils in the vicinity of SWMU 3, 4, 6, and 7.

Day-Care
NO – There is no information indicating the presence of a day-care on the facility.

Construction
YES – Construction workers may potentially be exposed to surface soils that may be high in contaminant concentrations and fugitive dust arising from the surface soils in the vicinity of SMWU 3, 4, 6, and 7.

Trespassers
NO – The facility is located in an industrial area with a fence surrounding the property thereby restricting access to trespassers.

Recreation
NO – There is no information indicating that any portion of the facility is for recreational use.

Food
NO – There is no information indicating that food is grown within the facility's boundary.

2. Sediment (surface)

REFERENCE: All available information within the Department files.

Workers
NO – For surface water and sediment, the facility has added riprap with filter fabric at storm water outfalls, constructed storm water retention basin, and diversion beams to control drainage of storm water into the surface water. Therefore the current exposure to storm water and sediment is under control.

Construction
NO – For surface water and sediment, the facility has added riprap with filter fabric at storm water outfalls, constructed storm water retention basin, and diversion beams to control drainage of storm water into the surface water. Therefore the current exposure to storm water and sediment is under control.

3. Soil (subsurface)

REFERENCE: All available information within the Department files.

RATIONALE:
Workers/Construction
YES – The workers at the facility may potentially be exposed to subsurface soils if construction activities required them to excavate down to the subsurface soils. Currently, there are no planned construction activities at the facility therefore exposure to subsurface soils is considered to be under control.

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

_____ If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are expected not to be "significant."

__✓__ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s):
The workers in the work environment are protected under the OSHA standards. Exposure from outdoor soils and fugitive dust in the outdoor air is considered minimal since the facility operations do not routinely require the personnel working in the outdoor environment. The incidental and minimal exposure to outdoor surface soils and fugitive dust that may occur will possibly be at concentrations that are below significant risk levels. However, there is not enough evidence at this time to suggest that surface and subsurface soil contamination does not exist. A more conclusive determination will be made upon completion of the Phase I RFI Work Plan monitoring and sampling, scheduled to begin in the Fall 2007.

Reference: *Phase I RFI Work Plan, revised Final July 17, 2007*

[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

5. Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

__✓__ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):

Current Human Exposures Under Control
Environmental Indicator (EI) RCRA Info code (CA725)

6. Check the appropriate RCRA Info status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

_____ YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the Emporia Foundry, Inc. facility, EPA ID # VAD023720105, located Emporia, Virginia, under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

_____ NO - "Current Human Exposures" are NOT "Under Control."

__✓__ IN - More information is needed to make a determination.

Completed by Matthew M. Stepien Date 9-24-07
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Supervisor Leslie A Romanchik Date 9/24/07
(print) Leslie A. Romanchik
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Locations where References may be found:

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FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.